

## **REMARKS**

### **Status of the Claims**

Claims 1-16 are pending in the application and have been rejected under 35 U.S.C. § 103(a) as being obvious over EP 1 361 243 A1 to Kodama et al. (“Kodama”).

### **Rejection Under 35 U.S.C. § 103(a)**

Claims 1-16 were rejected under 35 U.S.C. § 103(a) as being obvious over Kodama. According to the Examiner, Kodama “teaches a method of preparing oxytetramethylene glycol copolymer by copolymerizing tetrahydrofuran and neopentyl glycol in presence of heteropolyacid catalyst [see claim 2] and the preferred reaction temperature range of from 55 to 80°C [see 0083].” (Office Action, page 3). The Examiner further states that the “difference between the instant application and Kodama et al is that the instant application purified the impurities particularly bound nitrogen in neopentyl glycol using purification methods, viz., recrystallization, solvent extraction or treating with an ion exchanger etc., whereas Kodama et al purified the impurities or unreacted diol in the oxytetramethylene glycol by a distillation process.” (Id.) The Examiner further admits that Kodama is “silent on the amount of all impurities in the reaction mixture.” (Id.)

However, the Examiner takes the position that “absent of showing of unexpected results by the applicants, it would have been obvious to person of ordinary skill in the art to use alternative purification methods . . . since these are well known in the art, to purify the product.” (Office Action, page 4). Applicants traverse this rejection.

Contrary to the Examiner’s assertion, a person having ordinary skill in the art would not be motivated to practice Applicants’ claimed invention based on the teachings of Kodama. In particular, the disclosure of Kodama relied on by the Examiner – the use of distillation to remove unreacted diol – relates to purification of the *ultimate polymerization product*. In contrast,

Applicants' claimed process is directed to purifying neopentyl glycol, a **reactant**, "wherein the content of organically bound nitrogen in the neopentyl glycol is less than 5 ppm." In this regard, Kodama completely fails to teach or suggest any enhanced purification of any reactant, let alone purification of neopentyl glycol reactant **and**, in addition, with the specific focus of reducing the content of organically bound nitrogen in the neopentyl glycol such that it is less than 5 ppm.

Moreover, Applicants have discovered that reducing the content of organically bound nitrogen in the neopentyl glycol reactant such that is less than 5 ppm provides unexpected benefits, particularly with respect to catalyst activity. In this regard, Applicants direct the Examiner's attention to Example 1 and Comparative Example 2 of the present application. In Comparative Example 2, where commercial, technical grade neopentyl glycol was used (having 15 ppm of organically bound nitrogen) the mean deactivation of catalyst after 2000 hours of operation was about 0.08% a day. In contrast in Example 1, where the content of organically bound nitrogen in the neopentyl glycol reactant was reduced such that it was less than 5 ppm, the mean deactivation of catalyst after 2000 hours of operation was only 0.012% a day, a catalyst deactivation rate of **less than one-sixth** the rate found when commercial, technical grade neopentyl glycol was used. Accordingly, for this additional reason Applicants submit that the claims are patentable over Kodama.

Applicant believes the pending application is in condition for allowance.

Applicants believe no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 22-0185, under Order No. 12810-00147-US1 from which the undersigned is authorized to draw.

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Respectfully submitted,

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